RESEARCH PAPER

Availability of Healthcare Resources, Positive Ratings of the Care Experience and Extent of Service Use: An Unexpected Relationship

Disponibilité des ressources de soins de santé, appréciation positive de l'expérience de soins et étendue de l'utilisation des services : une relation inattendue

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Abstract

Two main avenues are advocated to improve the capability of healthcare systems to satisfy the public's needs and expectations: more resources and better organization. This paper sheds some light on this debate. It assesses the extent to which patients' positive rating of their healthcare experience and the extent to which they use services are related to the availability of healthcare resources. Findings indicate that patients' evaluations of their care experience and use of services were higher when the availability of resources was either limited or average. In no case were positive ratings of services and greater use of them associated with greater resource availability. Thus, simply adding resources runs the risk of diminishing, rather than improving, users' healthcare experience.

Résumé

Deux principales démarches sont favorisées pour l'amélioration de la capacité des systèmes de santé, afin de satisfaire les besoins et les attentes de la clientèle : des ressources accrues et une meilleure organisation. Cet article fait un peu de lumière sur ce débat. Il évalue à quel point l'appréciation positive des soins exprimée par les patients et leur degré d'utilisation des services sont liés à la disponibilité des ressources de soins de santé. Les résultats indiquent que l'évaluation de l'expérience et l'utilisation des services sont plus élevées quand la disponibilité des ressources est limitée ou de niveau moyen. Dans aucun cas, l'appréciation positive et une plus grande utilisation des services sont associées à une plus grande disponibilité de ressources. Ainsi, le simple fait d'injecter des ressources peut conduire au risque de diminuer l'appréciation de l'expérience de l'utilisateur, au lieu de l'améliorer.

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Observers in many countries have begun questioning whether their health systems are able to satisfy the public's needs and expectations (Saltman et al. 1998). Two main approaches have been proposed to resolve these problems (OECD 2004). The first involves providing more resources to health systems, based on the assumption that the problems are due to a lack of resources to deal with an aging population, increasing public expectations and technological developments (Standing Senate Committee 2002). The second approach suggests making better use of the resources already available and targets changes to the organization of health systems and the delivery of services (Romanow 2002). The underlying assumption is that adding resources will have a marginal effect on the problems within these systems if changes have not first been made to the organization of the systems.

This paper attempts to shed some light on this debate. The study was undertaken to determine whether a patient's experience with primary care services and use of services vary with the availability of health resources.

Data Source

This study consists of a secondary analysis of data from a project funded by the Canadian Health Services Research Foundation (CHSRF). Its methodological components have been detailed elsewhere (Haggerty et al. 2007). This project captured the experience of 3,319 primary care users in five Quebec administrative regions. Respondents came from a random sample of 100 medical clinics stratified by geographical context and clinic type. A total of 221 physicians participated in the study, and the users' sample consisted of approximately 15 patients seen consecutively by each of these physicians.

Variables and Methods

The users' experience of care was documented through a questionnaire that rated the accessibility, continuity and responsiveness of their primary care services and gathered their self-reported utilization of health services. Fourteen variables (described in Table 1, see http://www.longwoods.com/content/22178) were constructed for this study.

Accessibility was assessed according to the ease with which patients could contact primary care services given the location of the organizations, their opening hours, physician availability and waiting times for appointments, as well as the ease of patient access to services for emergency or urgent needs (Pineault and Daveluy 1986). There are three types of continuity of care: relational continuity, informational continuity and management continuity (Reid et al. 2002). This study measured *relational continuity* through the existence of a relationship between a patient and a physician or a primary care organization, the length and quality of this relationship and regular recourse to this source of care. *Informational continuity* was assessed by the transfer of information collected during visits with other primary care physicians to the patient's usual source of care. *Management continuity* was measured by the role played by the patient's usual source of care in requests for consultations with medical specialists. *Responsiveness* (WHO 2000) was measured by whether the patient was treated as a person and the importance that physicians gave to patient waiting times. *Service utilization* refers to the services of family physicians, medical specialists and hospital emergency rooms. Users' care experience is presented in more detail in another publication (Lamarche et al. 2010).

Four variables capture the availability of health resources. The variables represent the number of healthcare organizations available within 15 minutes' travelling time from the centre of a municipality where the primary care organizations used by patients were located (Gauthier et al. 2009). The health organizations were (1) primary healthcare organizations, (2) general hospitals offering general medical care, internal medicine and general and orthopaedic surgery, (3) specialized hospitals offering care in several other medical specialties but lacking sophisticated technical equipment and (4) hospitals providing ultra-specialized care; these were generally university hospitals with specialized or even ultra-specialized medical services and an elaborate technical infrastructure.

An index of vulnerability was constructed to capture users' susceptibility to poorer health and, consequently, to a greater need for service utilization. It includes a direct measure of users' health status. It also includes other factors that are likely to have an influence on care

experience and use of services independently of their association with health status. These factors are financial position (poor or very poor), level of education (no high school diploma), employment (other than employed), civil status (single), age (65 years of age or older) and perceived state of health (poor). Users with five or more of these factors (11.6% of users) were considered highly vulnerable. Users with none or one of these factors (11.7% of users) were given a low level of vulnerability. The vulnerability of the rest of the sample was considered average. The index was constructed with the explicit assumption of an increasing influence of users' vulnerability as the number of factors increases.

A logistic regression was performed to analyze the dichotomous variables of the care experience. These variables related to informational continuity, relational continuity and use of services. Ordinal logistic regression was used to analyze the polytomous variables of the care experience (three and four categories) (see Table 1).

Findings

Tables 2 and 3 present odds ratios (ORs) associating positive ratings of the care experience and reported use of services with the availability of primary healthcare resources and general hospitals (Table 2) as well as with specialized and ultra-specialized hospitals (Table 3). The data indicate that care experience and use of services are influenced by the availability of healthcare resources. The availability of general hospitals is less influential because it affects only components of relational continuity.

Generally, there was a negative gradient between users' ratings of care experience and the availability of healthcare resources. Positive evaluations were more frequent when the resources were least available. Having more resources available nearby reduced the likelihood that users would rate their healthcare experience positively. In general, when these resources were most available, the lowest proportion of users positively evaluated each component of the care experience.

There are exceptions to these patterns. The first exception concerns the availability of ultra-specialized hospitals. For slightly more than half of the components of the care experience, users were most likely to make a positive evaluation when they reported an average availability of these hospitals. This was the case for ease of contact, most aspects associated with relational continuity, informational continuity and one component of responsiveness (being considered a person by the family physician). The other half of these components followed the general pattern, that is, a positive evaluation of the care experience was more likely when there was less availability of these hospitals nearby.

The other exception pertains to the availability of primary care resources. The evaluation of some components of relational continuity was better when the availability of these resources was average. In no instance, however, was a positive evaluation of the care experience associated with greater availability of these health resources nearby.

TABLE 2. Association (OR) between a positive rating of the care experience, use of services and availability of primary healthcare resources and general hospitals, controlling for patient vulnerability

Components of Care Experience	Primary Care				General Hospitals		Reference Category
	Low		Average		Low		High
	OR	95% CI	OR	95% CI	OR	95% CI	OR
Accessibility							
Ease of contact	1.8	1.7–1.9	1.2	1.01–1.4	1.0	0.9–1.1	1.0
Urgent needs	1.3	1.2–1.4	1.1	0.9–1.3	1.1	0.9–1.2	1.0
Continuity							
Relational Continuity							
Affiliation with an MD/time	1.8	1.6–1.9	2.2	2.0–2.5	1.2	1.1-1.4	1.0
Affiliation with a clinic/time	1.5	1.4–1.7	1.6	1.4–1.8	1.2	1.01-1.3	1.0
Regular use of MD's services	1.4	1.3–1.8	1.5	1.3–1.7	0.9	0.7-0.99	1.0
MD's knowledge of the patient	1.8	1.6–1.9	1.4	1.3–1.6	1.0	0.9-1.1	1.0
Quality of communication	1.7	1.6–1.9	1.5	1.3–1.7	1.1	0.9–1.2	1.0
Management continuity	2.0	1.8–2.1	1.1	0.9–1.3	1.0	0.8–1.1	1.0
Informational continuity							
With MDs – primary care	1.9	1.6–2.2	1.0	0.7–1.4	0.9	0.7–1.2	1.0
Responsiveness							
Respect for the individual	1.5	1.3–1.6	1.4	1.2–1.0	1.1	0.9–1.2	1.0
Importance of waiting time	1.7	1.5–1.8	0.9	0.6–1.0	0.9	0.8–0.99	1.0
Utilization							
Number of primary care consultations	1.3	1.1–1.4	1.2	0.9–1.4	1.1	0.9–1.2	1.0
Number of specialists consulted	0.9	0.7–1.1	1.1	0.8–1.4	1.1	0.8–1.2	1.0
Use of emergency services	1.8	1.4–2.5	1.0	0.8–1.2	1.0	0.9–1.2	1.0

TABLE 3. Association (OR) between a positive rating of the care experience, use of services and availability of specialized and ultra-specialized hospitals, controlling for patient vulnerability

Components of Care Experience	Specialized Hospitals				Ultra-specialized Hospitals				Reference Category
	Low		Average		Low		Average		High
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR
Accessibility									
Ease of contact	1.8	1.6–1.9	1.3	1.2–1.5	1.7	1.5–1.8	1.7	1.5–2.0	1.0
Urgent needs	1.3	1.2–1.5	1.1	0.9–1.3	1.3	1.2–1.5	1.0	0.8–1.3	1.0
Continuity									
Relational Continuity									
Affiliation with an MD/ time	1.8	1.6–1.9	1.8	1.7–2.0	1.9	1.8–2.1	2.6	2.4–2.9	1.0
Affiliation with a clinic/ time	1.7	1.6–1.9	1.3	1.1–1.5	1.7	1.5–1.8	2.1	1.9–2.4	1.0
Regular use of MD's services	1.6	1.4–1.7	1.5	1.3–1.6	1.4	1.2–1.5	1.9	1.7–2..1	1.0
MD's knowledge of the patient	2.0	1.8–2.1	1.8	1.6–1.9	1.8	1.6–1.9	2.2	2.0–2.5	1.0
Quality of communication	1.9	1.7–2.1	1.5	1.3–1.6	1.7	1.6–1.9	1.7	1.4–1.9	1.0
Management continuity	2.0	1.8–2.2	1.4	1.2–1.6	1.7	1.5–1.9	1.6	1.2–1.9	1.0
Informational continuity									
With MDs – primary care	2.0	1.7–2.3	1.5	1.2–1.8	1.7	1.4–1.9	2.1	1.6–2.7	1.0
Responsiveness									
Respect for the individual	1.7	1.5–1.9	1.6	1.4–1.8	1.6	1.4–1.7	2.1	1.8–2.4	1.0
Importance of waiting time	1.5	1.3–1.6	1.1	0.9–1.2	1.5	1.4–1.7	1.1	0.8–1.3	1.0
Utilization									
Number of primary care consultations	1.3	1.1–1.4	1.2	1.1–1.4	1.2	1.0–1.3	1.0	0.7–1.2	1.0
Number of specialists consulted	0.9	0.6–1.1	1.0	0.7–1.3	0.9	0.7–1.2	1.4	1.0–1.8	1.0
Use of emergency services	1.7	1.3–2.5	1.3	1.01–1.7	1.7	1.3–2.0	1.0	0.7–1.3	1.0

A similar but weaker association exists between the use of services and the availability of health resources. The association was generally negative. The use of services was more frequent when resources were least available. Having more resources available nearby reduced the likelihood of using services. When resources were most available, use of services was reported by the lowest proportion of users. This general pattern was found for the availability of primary care resources and specialized hospitals on the one hand and the use of primary care consultations and emergency services on the other hand. The nearby availability of general hospitals did not influence the use of any type of services. The use of medical specialists was related only to the availability of ultra-specialized hospitals. Their use was more frequent when the availability of these hospitals was average. But in no instance was the use of services associated with greater availability of these health resources nearby.

Discussion and Conclusion

This study found that positive evaluations of the care experience were more commonly made by users of primary care services in municipalities where the availability of health facilities was rated low or average. This association was observed for almost all the components of the care experience as well as for most of the health resources analyzed. This study also revealed that a positive perception of the care experience was less common among users of primary care service organizations with the greatest availability of nearby health resources. This association was also observed for almost all the components of the care experience. Similar but weaker associations were found regarding the use of services.

These results could not be explained by differences in users' characteristics. The reported associations held after controlling for the level of vulnerability of users. Vulnerability did influence the rating of the care experience as well as use of services, but did not modify significantly the effect of availability of healthcare resources. Different expectations of people living in areas with various levels of availability of resources are not likely, either, to account for these results. Residents of rural settings attached greater value to different components of the care experience than their counterparts in urban centres (Gauthier et al. 2009). However, no significant difference was found on the level of expectations between rural and urban residents. If a difference exists, it is that rural residents may have higher expectations than urban residents, not the reverse (Haggerty et al. 2008).

This study re-emphasizes the significance of characteristics of the healthcare system in patients' positive evaluation of their care experience and their extent of service use (Andersen and Newman 1973). To our knowledge, this study is the first to compare the care experience of users in municipalities with varying availability of healthcare facilities nearby. Contrary to popular belief, greater availability of healthcare resources is associated with less rather than greater use of services and less positive evaluation of the care experience.

Similar results have been observed in studies comparing the performance of healthcare systems and the amount of resources at their disposal. These studies compared healthcare systems of several developed countries (Davis et al. 2007), including Australia, Canada and European countries (Health Consumer Powerhouse EB and Frontier Centre 2008) and of

Canadian provinces (Lamarche et al. 2007). None of these studies showed a positive relationship between the performance of the systems, including components of users' care experience, and the resources available. At best, they showed no relationship.

There are at least four possible explanations for these results. The first concerns the responsibility of care providers. It is plausible that care providers practising in municipalities with fewer resources feel more personally responsible for patients in their community. These organizations are keenly aware that if they do not fully assume their responsibilities, negative consequences may ensue for the community. The situation appears to be very different for service providers practising in municipalities with more health resources. For example, family physicians in rural and remote areas were much less likely than those in urban centres to close their practices. Conversely, family physicians were more likely to close their practices when they perceived their communities to have good emergency department services and when other physicians in the community also had closed their practices (Woodward and Pong 2006). Other evidence supports this explanation (Geneau 2004).

The second explanation concerns the organization of primary care services. In one of our studies, we observed that the organization of primary care services differs according to the availability of health resources (Lamarche et al. 2009b). In municipalities with few nearby health resources, primary care organizations are generally associated with satisfying care experiences. Conversely, in municipalities with more health resources, primary care organizations are generally associated with less satisfying care experiences.

The third explanation lies in the nature of these organizations' environments. Organizations operating in municipalities with fewer nearby health resources are generally located in rural areas, farther from large urban centres. One might conclude that these contextual characteristics explain as much, if not more, of our observations than merely the availability of nearby resources. Some of our observations support this explanation (Lamarche et al. 2009c).

The fourth explanation concerns the nature of the relationships among healthcare resources. One of the factors associated with users' favourable experiences of care is the integration of services within municipalities (Lamarche et al. 2002). This integration appears to be more difficult to achieve, and thus is less common, in areas with more nearby resources.

One of the major consequences of our findings is that without a better understanding of the influence of the availability of resources on the behaviour of service providers and on the integration of their activities, adding resources runs the risk of reducing rather than increasing the number of users who will be satisfied with their care experience and who will use services.

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TABLE 1. Operational definitions of variables

Variables	Question Items and Response Categories	Coding Categories
Organizational Accessibility		
Ease of contact	Ease of contacting the clinic associated with 1 – Location, 2 – Office hours, 3 – Clinic availability, 4 – Physician availability and 5 – Waiting times for an appointment: Excellent, Very good, Good, Average, Poor or Very poor	Number of Excellent and Very good: Very positive = 5; Positive = 4; Less positive = 2 & 3; Least positive = 0 & 1
Ease of contact in an emergency / urgent needs	When sick or in immediate need, ease of: 1 – seeing someone the same day when the clinic is open; 2 – seeing or talking to someone in the clinic at night; 3 – seeing or talking to someone in the clinic during weekends; 4 – A telephone number you can dial to talk to someone Absolutely yes, Probably yes, Probably not, Absolutely not	Number of Absolutely and Probably yes: Very positive = 4; Positive = 3; Less positive = 1 & 2; Least positive = 0
Continuity		
Relational continuity		
Affiliation with an MD	Years of affiliation: Number	Positive = ≥ 2 years; Less positive = < 2 years
Affiliation with clinic	Years of affiliation: Number	Positive = ≥ 2 years; Less positive = < 2 years
Regular use of care services	Consultation with your physician for: 1 – a general health exam; 2 – a new health problem; 3 – a health question; 4 – You see the same physician whenever you visit the clinic Absolutely yes, Probably yes, Probably not, Absolutely not	Number of Absolutely yes replies: Very positive = 3 & 4; Positive = 2; Less positive = 1; Least positive = 0
MD's knowledge of the patient	Your physician knows: 1 – you as a person; 2 – with whom you live; 3 – your most important problems; 4 – your complete medical history; 5 – your occupation; 6 – your difficulty in obtaining or paying for your drugs; 7 – the drugs you are taking Absolutely yes, Probably yes, Probably not, Absolutely not	Number of Absolutely yes replies: Very positive = 6 & 7; Positive = 4 & 5; Less positive = 2 & 3; Least positive = 0 & 1
Quality of MD–patient communication	Your physician would: 1 – call you to give the results of your tests; 2 – meet members of your family if necessary; 3 – let you look at your medical record Absolutely yes, Probably yes, Probably not, Absolutely not	Number of Absolutely yes replies: Very positive = 3; Positive = 2; Less positive = 1; Least positive = 0
Management continuity		
Role of clinic and physician in consultations with specialists	Your physician: 1 – refers you to the specialist; 2 – knows that you consulted the specialist; 3 – helps in obtaining an appointment; 4 – explains the reason of the reference to the specialist; 5 – knows the results of the consultation; 6 – explains these results to you Absolutely yes, Probably yes, Probably not, Absolutely not	Number of Absolutely yes replies: Very positive = 6; Positive = 4 & 5; Less positive = 2 & 3; Least positive = 0 & 1
Informational continuity	Your physician is informed about a visit you made to another family physician Absolutely yes, Probably yes, Probably not, Absolutely not	Positive = Absolutely and Probably yes Less positive = Otherwise

TABLE 1. Continued.

Variables	Question Items and Response Categories	Coding Categories
Responsiveness		
Respect for the individual	Your physician: 1 – replies to questions in a way you understand; 2 – gives you time to talk about your problems and sorrows; Are you: 3 – at ease talking about your problems and sorrows; 4 – confident that your physician understands what you say and ask? Yes, Probably yes, Probably not, No	Number of yes replies: Very positive = 4; Positive = 3; Less positive = 2; Least positive = 0 & 1
Importance of waiting time	Appreciation of the waiting time at the clinic before seeing your physician Excellent, Very good, Good, Average, Poor, Very poor	Very positive = Excellent; Positive = Very good; Less positive = Good; Least positive = Otherwise
Service Utilization		
PHC MDs	Visits in the last year: Number	More ≥ 5 visits; Less = ≤ 5
Medical specialists	Different medical specialists consulted in the last 2 years: Number	Number of specialists consulted: More = ≥ 1; Less = 0
Emergency departments	Number of visits to a hospital Emergency Department in the last year: Number	More = ≥ 1 visit; Less = 0 visit